Solutions

Marking: **M1** a correct method, **A1** the correct answer.

Each answer shows the steps, then the **result**.

2.1

- $63\,000 = \mathbf{6.3 \times 10^{4}}$

2.2

- $0.0045 = \mathbf{4.5 \times 10^{-3}}$

2.3

- $2.7 \times 10^{-3} = \mathbf{0.0027}$

2.4

- move the decimal point 5 places right: **406 000**

2.5

- $\mathbf{2.9 \times 10^{-3}}$, because 10^{-3} is ten times bigger than 10^{-4}: $0.0029 > 0.00032$

3.1

- $4 \times 2.5 = 10$ and $10^{6} \times 10^{-3} = 10^{3}$
- $10 \times 10^{3} = 1 \times 10^{4}$
- $\mathbf{1 \times 10^{4}}$ – the front must lie between 1 and 10

3.2

- $8 \div 2 = 4$ and $10^{5} \div 10^{2} = 10^{3}$
- $\mathbf{4 \times 10^{3}}$

3.3

- $3 \times 10^{4} = 30\,000$ and $5 \times 10^{3} = 5\,000$
- $35\,000 = \mathbf{3.5 \times 10^{4}}$

3.4

- $\text{time} = \dfrac{\text{distance}}{\text{speed}} = \dfrac{1.5 \times 10^{11}}{3 \times 10^{8}} = 0.5 \times 10^{3} = \mathbf{500}$ seconds
- $500 = 8 \times 60 + 20$: **8** minutes **20** seconds

3.5

- $\text{number} = \dfrac{3}{7.5 \times 10^{-10}} = 0.4 \times 10^{10}$

$$= \mathbf{4 \times 10^{9}}$$

3.6

- convert: $2\text{ cm} = 2 \times 10^{-2}\text{ m}$
- $\text{number} = \dfrac{2 \times 10^{-2}}{8 \times 10^{-6}} = 0.25 \times 10^{4}$
- $= \mathbf{2.5 \times 10^{3}}$ cells